

**Via Electronic Mail and Federal Express**

September 14, 2012

Ms. Raji Josiam  
Remedial Project Manager  
US Environmental Protection Agency - Region 6  
1445 Ross Ave, Suite 1200, 6SF-RA  
Dallas, TX 75202

**Re: Northern Area Evaluation – Proposed Soil Boring Plan  
South Cavalcade Superfund Site  
Houston, Texas**

Dear Ms. Josiam:

On behalf of Beazer East, Inc. (Beazer), please find enclosed one hard copy and one electronic copy of the documents comprising the Northern Area Evaluation Proposed Soil Boring Plan for the South Cavalcade Superfund Site located in Houston, Texas. Included in this transmittal, as discussed during our July 31, 2012 meeting, are the following:

- A drawing depicting the locations of geologic cross-sections A-A' and B-B' with the existing borings, wells, and piezometers used in the northern area evaluation (Figure 1) and a plan map showing the proposed transect boring locations (Figure 2).
- Cross-Sections A-A' and B-B' (Figures 3 and 4, respectively) depicting site geology as well as the visual observations of the presence of creosote described as residual (e.g., oily residue, oil spots, staining), sheen or free product.

A hard copy and electronic copy of the documents have also been sent directly to Fay Duke at the Texas Commission on Environmental Quality (TCEQ). Additional details regarding the proposed soil boring program are as follows:

**Objectives**

The objectives of the soil boring program are to verify the nomenclature used during previous Site investigations to describe visual observations of potential impacts in soil and to refine the understanding regarding the occurrence and distribution of dense non-aqueous phase liquid (DNAPL) in the northern portion of the Site. The data from this investigation will be used in conjunction with existing information to determine whether horizontal or vertical migration is occurring and the limits of source material that may require remediation, if appropriate. Soil samples for bench scale treatability testing will be collected during the investigation. The

technologies to be potentially evaluated by bench scale testing include in situ geochemical stabilization (ISGS) and in situ solidification/stabilization.

### **Proposed Boring Locations**

- A total of twenty-eight borings located along eight transects are proposed. The boring spacing along the transects is 50 feet. The transects are located in three separate areas as identified during the July 31 meeting.
- Fourteen borings on four transects (2 borings on Transect 1 and Transect 4 and 5 borings on Transect 2 and Transect 3) are proposed in the vicinity of DNAPL Recovery Well RWN-4 from which DNAPL has been removed in the past to further investigate the presence of free phase DNAPL in this area.
- Eight borings will be completed along two transects (four borings each on Transect 5 and Transect 6) in the vicinity of the eastern property boundary where sheen and residual DNAPL have been observed to determine if free phase DNAPL exists in this area.
- Six borings will be completed along two transects (three borings each on Transect 7 and Transect 8) in the RWN-5/MW-02 area where sheen and residual DNAPL have been observed to determine if free phase DNAPL exists in this area.
- Two additional borings will be completed in areas beyond those covered by the transects. One boring will be completed near the western property boundary between the locations of borings DPN-TN1 and DPN-TN-2. Another boring will be located in between Transect 4 and Transect 5 adjacent to RI Soil Boring A04-SB-01.

### **Boring Advancement and Sampling Intervals**

- Borings will be advanced using direct push technology (e.g., GeoProbe) with continuous sampling with maximum core lengths of five feet.
- Twenty-six (26) of the thirty (30) borings will be advanced to the top of the uppermost continuous confining unit (the clay of the intermediate aquitard) which is typically encountered at a depth of 20 to 25 feet below ground surface.
- The remaining four borings will be completed to the base of the intermediate sand unit (depth of 50 to 60 feet below ground surface). These borings include the boring located near the western property boundary between the locations of borings DPN-TN1 and DPN-TN-2; the boring located in between Transect 4 and Transect 5 adjacent to RI Soil Boring A04-SB-01; and, two borings located on Transect 2 in the vicinity of wells OW-15 and ITW-01R. Temporary casing will be set into the upper portion of the intermediate aquitard and sealed to prevent potential downward vertical migration of DNAPL from the shallow zone during sampling of the intermediate zone.

- The soil cores will be logged, described and photographed by a qualified geologist, scientist or engineer. Cores will be visually inspected for the potential presence of DNAPL and will be described as containing no evidence of creosote, residual DNAPL (including the type of residual DNAPL observed e.g., oily residue, oil spots, staining), sheen or free phase DNAPL. The nomenclature to be used to describe observations of potential source material will be developed in the field in consultation with the EPA geologist. The soil descriptions will be supplemented with photographs of the soil cores.
- Should a significant quantity of free-phase DNAPL (as defined by agreement in the field among Beazer and EPA representatives) be observed in a perimeter transect boring, additional “step out” borings will be completed as necessary to complete delineation.
- The completed borings will be sealed using bentonite pellets, bentonite chips or a cement-bentonite grout. Survey coordinates for the boring location will be acquired using a hand held Global Positioning System unit.

### **Reporting**

A letter report will be prepared for submittal to EPA and TCEQ to document the results of the investigation. The plan map and table/spreadsheet submitted as part of the North Area Evaluation dated July 6, 2012 will be updated to incorporate the new information from this investigation, as will cross-sections A-A' and B-B' which are included herein as Figures 3 and 4, respectively. Boring logs and photographs will be provided as an attachment to the letter report. Recommendations for future activities will be made.

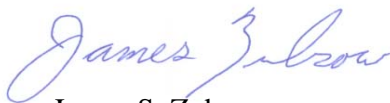
### **Schedule**

Pending subcontractor availability and workplan acceptance by EPA and TCEQ, KEY anticipates that the field investigation will be initiated on October 9, 2012. The field investigation will be completed in approximately two to three weeks. Data evaluation and reporting is expected to require four weeks from the completion of the field investigation.

### **Closing**

I look forward to approval of this work plan and its implementation. In the meantime, please feel free to call me or Mike Bollinger at Beazer with any questions.

Sincerely,



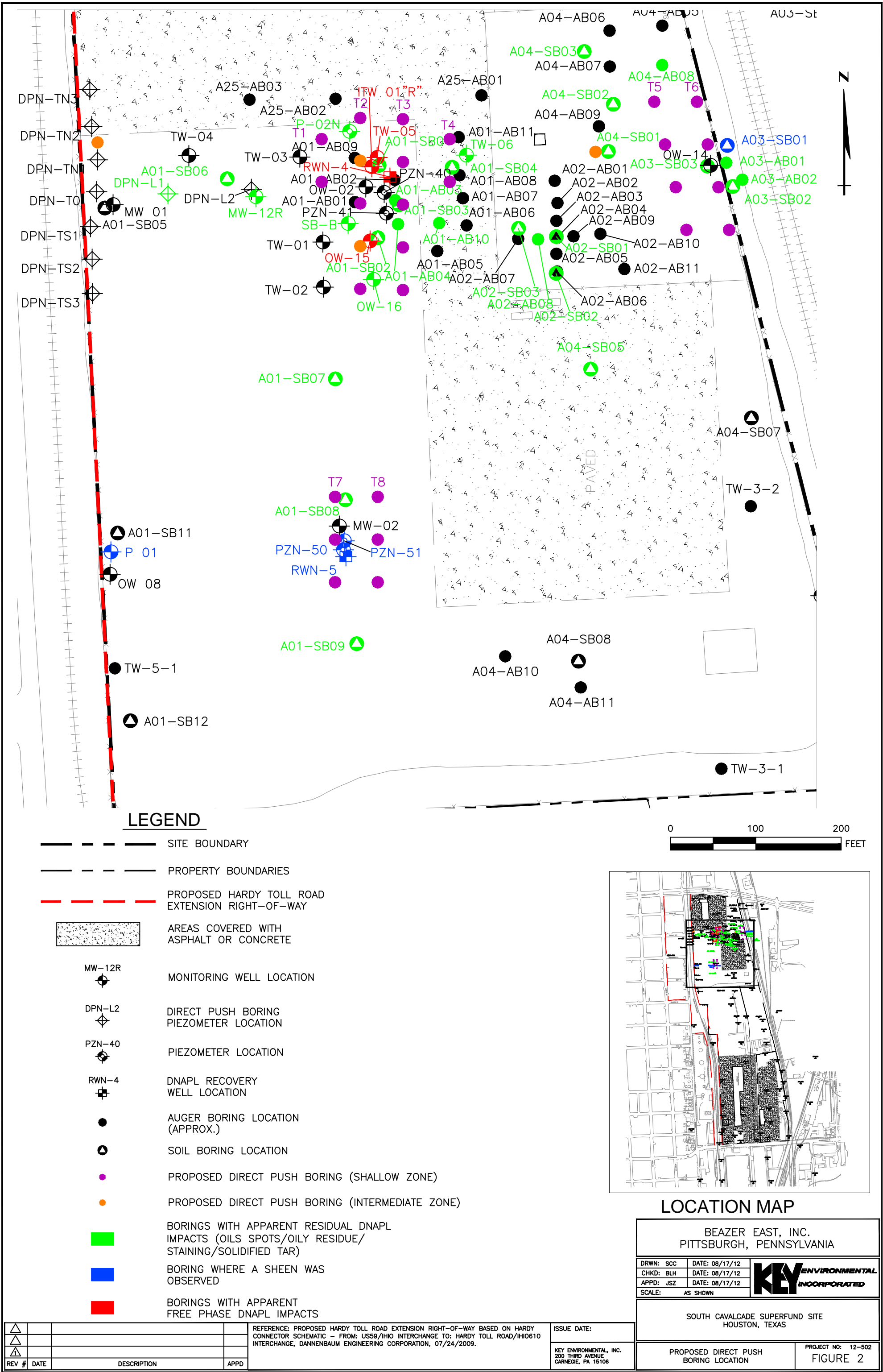
James S. Zubrow  
Principal Hydrogeologist

cc: F. Duke – TCEQ  
M. Bollinger – Beazer

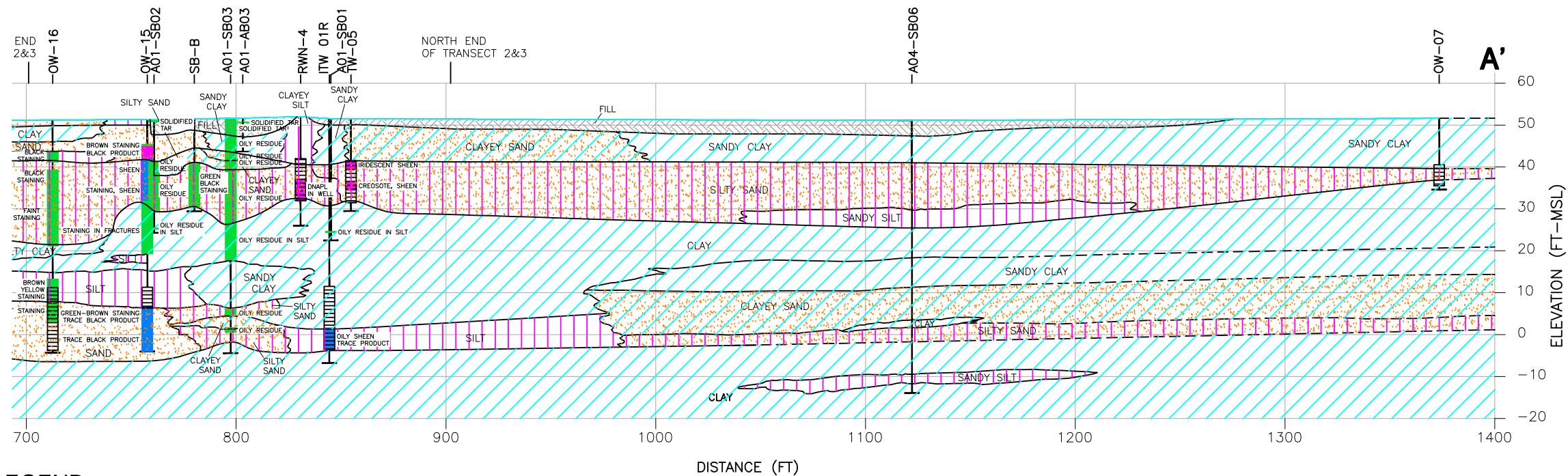
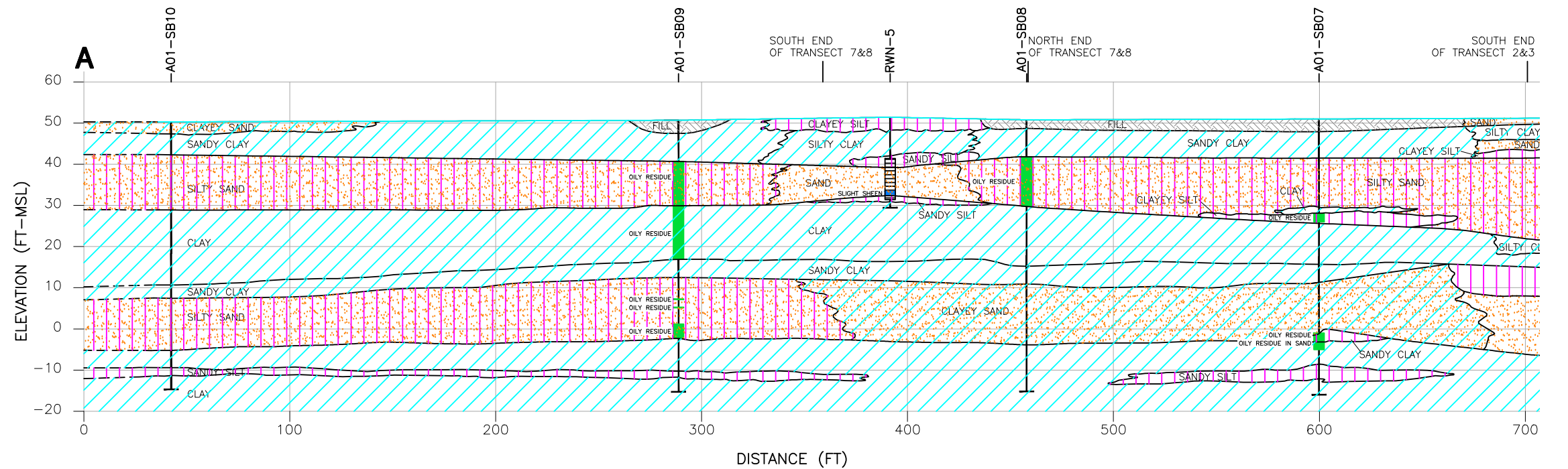




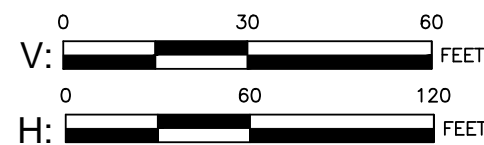
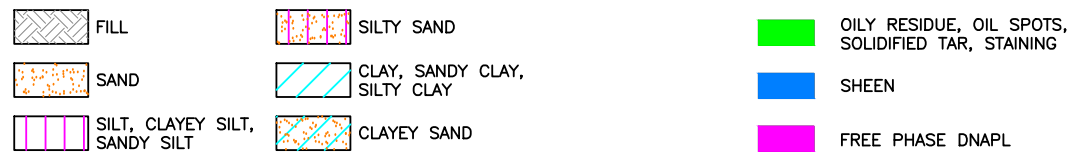
y:\south\_cavalcade\11-318\focused\_feasibility\_study\_addendum\_isco\_technology\_alternative\cross\_sections\_a-c' and b-b'-revised\_08-31-12.dwg Last Saved By: Sonner 8/31/2012 8:41 AM Plotted By: Shelly Comer 9/14/2012 2:28 PM Scale: 1:1



y:\south\_cavalcade\11-318\cavalcade feasibility study addendum isco technology alternative cross sections a-a' and b-b'-revised 08-20-12.dwg Last Saved By: Scomer 8/23/2012 2:45 PM Plotted By: Shelly Comer 8/23/2012 2:45 PM Scale: 1:1



**LEGEND**



△			
△			
△			
REV #	DATE	DESCRIPTION	APPD

REFERENCE:

ISSUE DATE:

KEY ENVIRONMENTAL, INC.  
200 THIRD AVENUE  
CARNEGIE, PA 15106

BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

DRWN: SOC	DATE: 08/17/12
CHKD: MRG	DATE: 08/17/12
APPD: JSZ	DATE: 08/17/12
SCALE:	AS SHOWN



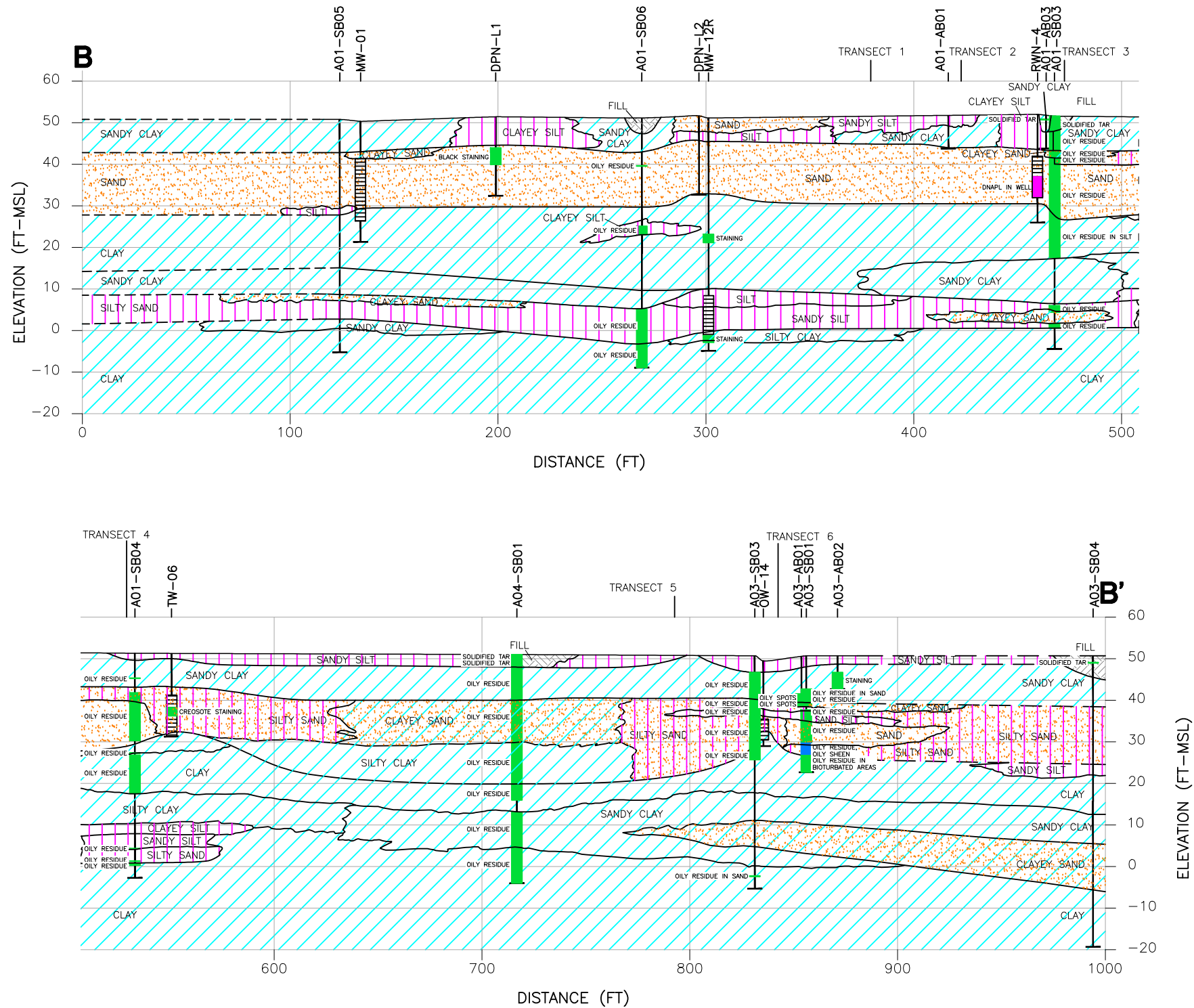
SOUTH CAVALCADE SUPERFUND SITE  
HOUSTON, TEXAS

CROSS SECTION A-A'

PROJECT NO: 12-502  
FIGURE 3

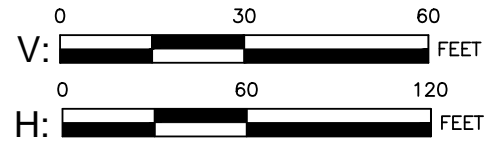
006727

y:\south\_cavalcade\11-318\ecusad feasibility study addendum isco technology alternative cross sections a-a' and b-b'-revised 08-20-12.dwg Last Saved By: Scomer 8/23/2012 2:47 PM Plotted By: Shelly Comer 8/23/2012 3:04 PM Scale: 1:1



LEGEND

- |                               |                              |   |
|-------------------------------|------------------------------|---|
| FILL                          | SILTY SAND                   | OILY RESIDUE, OIL SPOTS, SOLIDIFIED TAR, STAINING |
| SAND                          | CLAY, SANDY CLAY, SILTY CLAY | SHEEN   |
| SILT, CLAYEY SILT, SANDY SILT | CLAYEY SAND                  | FREE PHASE DNAPL                                  |



△			
△			
△			
REV #	DATE	DESCRIPTION	APPD

REFERENCE:			

ISSUE DATE:
KEY ENVIRONMENTAL, INC. 200 THIRD AVENUE CARNEGIE, PA 15106

BEAZER EAST, INC. PITTSBURGH, PENNSYLVANIA	
DRWN: SOC	DATE: 08/17/12
CHKD: MRG	DATE: 08/17/12
APPD: JSZ	DATE: 08/17/12
SCALE:	AS SHOWN
SOUTH CAVALCADE SUPERFUND SITE HOUSTON, TEXAS	
CROSS SECTION B-B'	PROJECT NO: 12-502 FIGURE 4